

NUMERICAL ANALYSIS AND SCIENTIFIC COMPUTING
SEMINAR

Approximating Stability Radii

Manuela Manetta
School of Mathematics Georgia Institute of Technology

Abstract: The distance of a $n \times n$ stable matrix to the set of unstable matrices, the so-called distance to instability, is a well-known measure of linear dynamical system stability. Existing techniques compute this quantity accurately but the cost is of the order of multiple SVDs of order n , which makes the method suitable for medium-size problems. A new approach is presented, based on Newton's iteration applied to the pseudospectral abscissa, whose implementation is obtained by discretization of differential equations for low-rank matrices, and is particularly suited for large sparse matrices.

Friday, December 5, 2014, 12:00 pm
Mathematics and Science Center: W301

MATHEMATICS AND COMPUTER SCIENCE
EMORY UNIVERSITY